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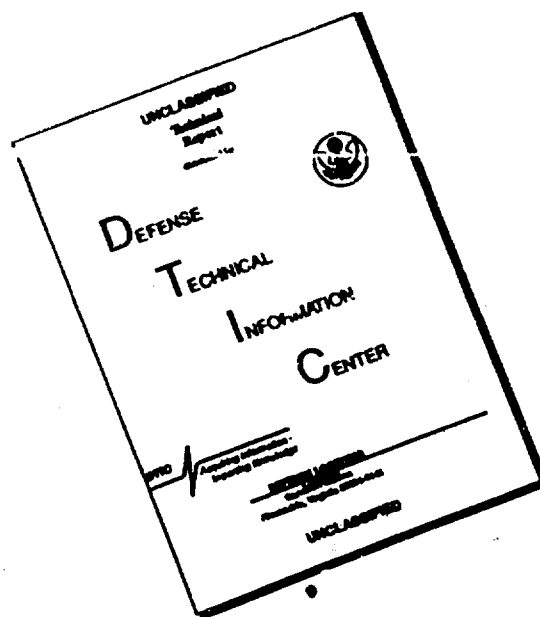
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FIFTH EUROPEAN CONGRESS ON MOLECULAR SPECTROSCOPICS

[Following is the translation of an article by M. M. Suchchinskiy, Doctor of Physical-Mathematical Sciences, in Vestnik Akademii Nauk SSSR (Herald of the Academy of Sciences, USSR), Vol 31, No 12, December 1961, pages 101-102.]

The Fifth European Congress on Molecular Spectroscopics was held at the end of May and the beginning of June in Amsterdam. Approximately 700 delegates from 28 countries participated in the work of the Congress. Seventeen introductory reports were read at plenary sessions of the Congress and more than 150 reports and papers at sectional sessions. All the main directions of contemporary molecular spectroscopics were presented in the works reported.

A large number of reports were concerned with research on infra-red absorption spectra. In the reports delivered a survey was given of the most recent achievements in the study of the gyral structure of infra-red absorption bands. Data obtained in recent years at Cambridge in the study of infra-red spectra of absorbing molecules, as well as data received from many years of research by French scientists on methods of infra-red spectroscopics of intermolecular coordination in liquids were instrumental in achieving results in establishing the structure of molecules and the detection of rotary isomers, in the measurement of internal rotation barriers, dipole moments, etc.

Several reports were devoted to new research methods in the field of infra-red spectroscopics and the results achieved by these methods, in particular, a description was given of a method for determining optic constants (index of refraction and coefficient of absorption). This method is based on the utilization of the phenomenon of full internal reflection. Infra-red spectra in many instances more expressive than the usual absorption spectra can be obtained by the use of this method. Reports on the infra-red research of the future were heard with interest.

Attention was attracted by reports on the solution of special questions of chemical physics on the basis of matrix technology. This method has been very valuable for research in isolated molecules or radicals as well as molecules possessing a great reaction capacity.

The reports read on micro-wave spectroscopics, atomic magnetic resonance and electron resonance attest to the continuing perfection of these methods and the expansion of their field of application. In the majority of works reported on research data was given on individual molecules or groups of units. More general questions were touched upon in reports devoted to electron back densities in organic free radicals, of theory C^{+} splitting in electron resonance spectra, and to paramagnetic resonance in a triplex state.

In considering the works relative to research on spectra with a combined dispersion of light, interest was evoked by a report on general questions on measuring the intensity of combined lines as well as by the reports on research in spectra opaque in a visible field, fluorescent and properties easily transformed under the action of light by means of utilizing original apparatus, improved sources of light, light filters and receivers. A number of other reports delivered at the congress attested to the inclination to extend the technical potentialities of spectroscopies in combined dispersion.

Several reports were on the study of spectra of combined dispersion in individual units in relation to explaining the peculiarities of their structure, on research in intermolecular reaction, rapid changes in the intensity of combined lines in the movement of chemical reactions, etc.

Work in ultra-violet spectra was reviewed in a considerable group of the reports. The following main trends were stressed: research in the transfer of energy, ultra-violet spectra of hard bodies, vacuum ultra-violet spectra, and the study of the effects of reaction.

The Congress indicated that all branches of molecular spectroscopies are being successfully developed and that vast acceptance is found in the solution of theoretical as well as applied problems. It is noteworthy that one of the main directions of contemporary molecular spectroscopies is now the study of the active state of a property (radical, bi-radical, complex, ion) playing an important role in the different physical-chemical processes. The application of radio spectroscopic methods of research (particularly electron paramagnetic resonance) and the study of electron spectra of molecules have the best outlook in works being conducted in this direction.

A small exhibition of special apparatus was displayed for the participants of the Congress. Moreover, the members of the Soviet delegation had an opportunity to visit the scientific-research laboratories of Shell in Amsterdam and the laboratory of low temperatures in Leyden.